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AE/1773

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Docket No.: ATM-2244

Applicant: Wilfried JUD et al.

Serial No.: 09/505,713

Examiner: M. Jackson

Filed: February 17, 2000

Art Unit: 1773

Title: STERILIZABLE COMPOSITE FILM

AMENDMENT AFTER FINAL

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Office Action of December 19, 2001, applicants submit the following comments and information.

Claims 15 to 19, 21, 22, 27 to 29 and 32 to 37 have been rejected under 35 U.S.C. 102(b) as being anticipated by Breitler et al. (U.S. Patent No. 5,589,275). Applicants traverse this rejection.

Applicants' invention involves a sterilizable composite film containing a barrier layer that is impermeable to water vapor and gases comprising a metal foil and on both sides of the barrier layer at least one functional layer. The composite film has a layer structure containing one on top of the other in the following sequence:

(a) a first functional layer containing a plastic film that is a polyester, a polyamide, or a polyolefin, or an extrusion layer of a polyolefin, or one or more lacquer layers, or print and lacquer layers, or print layers;

(b) a metal foil having a thickness of 5 to 100 μm ; and

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(c) a second functional layer containing a plastic layer that is a layer comprising a coextrusion-coated, a coextruded, and/or an extrusion-laminated film having a sequence of a first polypropylene layer, a polyamide layer, and a second polypropylene layer.

Breitler et al. does *not* teach applicants' claimed composite film.

Only for purposes of simple comparison with the disclosure of Breitler et al., applicants' claimed composite film has the following structure:

- (1) polyester, polyamide or polyolefin layer;
- (2) metal foil;
- (3) polypropylene layer;
- (4) polyamide layer
- (5) polypropylene.

Breitler et al. does *not* teach this sequence of layers having such components so Breitler et al. does *not* anticipate any of applicants' claims.

The sequence of layers in applicants' claimed composite film is in the order of (1) to (5). Even if the Examiner (incorrectly) asserts that, for example, Claim 15 does not specify which layer, i.e., (3) or (5), of second functional layer (c) fronts the metal foil, the result is still a polypropylene layer between polyamide layer (4) and the metal foil. So there is no anticipation by Breitler et al.

Anticipation under Section 102 requires that a prior art reference disclose all of the features, limitations, structures, etc., recited in a claim.

Nowhere does Breitler et al. disclose a polypropylene layer between a metal layer and a polyamide layer, therefore Breitler et al. does not teach or suggest applicants' composite film.

The Office Action stated: that Breitler et al. teaches a composite material containing a metal layer, on both sides of that is a plastic layer wherein the metal layer is metal foil, preferably aluminum or aluminum alloy with an aluminum purity of most preferably 99.5 percent or higher, including AA8014, AA8079, or AA8101, having a thickness of 40 to 70 μm ; and that wherein the plastic layer(s) is a polyamide-based thermoplastic containing polyamide with a thickness of 20 to 50 μm (Abstract; and Col. 3, lines 1 to 22 and lines 66 and 67). Applicants traverse this statement as being an incorrect statement of the disclosure of Breitler et al. As per the disclosure of Breitler et al., the only layers that can be between the polyamide layers and the metal layer are thin adhesive layers and/or thin primer or bonding agent layers and/or barrier layers.

Breitler et al. works with a basic composite material of a metal layer with a polyamide layer on both sides. When Breitler et al. permits any layer (i.e., adhesive or bonding agent or primer) between one of the polyamide layers and the metal layer, Breitler et al. specifically indicates such. All of the other layers mentioned by Breitler et al. are located outside of the polyamide layers (i.e., not between the polyamide layers and the metal layer).

Breitler et al. uses polypropylene in sealing layers located on the outside of the polyamide layers. Sealing layers are not used by Breitler et al. inside of the polyamide layers.

The Office Action stated that Breitler et al. teaches that the plastic layers on both sides of the metal layer include composites of two or more films or layers wherein the polyamide-based thermoplastic layers may additionally and independent of each other be provided with an outer lying sealable layer and/or barrier layer of thermoplastics, such as, a polypropylene sealable layer, wherein the sealable layers are sealable films deposited

via adhesives, applied by lamination or lamination coating wherein the thickness of the sealable films may be 6 to 100 μm thick and furthermore, one or more layers, e.g., 1 to 10 μm thick, of a sealing layer coating may be deposited on the plastic composite (Col. 4, lines 1 to 38). Applicants traverse this statement as it does not indicate that there is no disclosure in Breitler et al. that places any sealable layer (and/or any barrier layer) between the polyamide layers and the metal layer.

The sealable layers of Breitler et al. only lie outside of the polyamide layers. The Examiner stated above "an outer lying sealable layer". To try to place a sealable layer between the metal layer and the polyamide layers of Breitler et al. finds no support in Breitler et al.

Breitler et al. states:

"The plastic layers on both sides of the metal layer, in particular the polyamide-based thermoplastics may additionally, and independent of each other, be provided with an outer lying sealable layer and/or a barrier layer of thermoplastics."

"The composite according to the invention may also feature a sealing layer or sealable layer on one or both sides." [Emphasis supplied] [Column 4, lines 9 to 15]

"Furthermore, one or more layers, e.g. 1 to 10 μm thick, of a sealing coating or hot-sealing coating, for example, may be deposited on the plastic composite."

[Emphasis supplied] [Column 4, lines 32 to 35]

The Office Action stated that Breitler et al. further teaches that a single or double-sided sealable composite may be obtained by single or double-sided coextrusion of the plastic layers, wherein in that connection, it is useful for the plastic layers to contain or comprise a polyamide-based thermoplastic and at least one polyamide layer to feature a

sealing layer on at least one side, i.e., each layer of polyamide thermoplastic may be covered with a sealable layer on one side or both sides, independent of the other layers (Col. 4, lines 36 to 45). Applicants traverse this statement as being clearly incorrect.

The Examiner has cited column 4, lines 36 to 45, of Breitler et al. but such does not support the Examiner's position. The Examiner has misconstrued that portion of Breitler et al. and has taken it out of context.

The paragraph at lines 36 to 38 in column 4 of Breitler et al. reads:

"A single or double-sided sealable composite is obtained by single or double-sided coextrusion of the plastic layers with e.g. a polypropylene/polyethylene copolymer." [Emphasis supplied]

It is clear that this paragraph is awkward in its language. One ordinarily skilled in the art would readily understand that what Breitler et al. meant was that the sealable layers were located only on the outside of the polyamide layers.

The above quotation from Breitler et al. does *not* refer to coextrusion of polypropylene on both sides of a polyamide layer. The phrase "single or double-sided coextrusion" clearly refers to coextrusion of a polyamide layer and an outer polypropylene/polyethylene layer onto one side or both sides of the metal layer. This meaning of such paragraph is shown by the start of the sentence "A single or double-sided sealable composite is obtained..." Within Breitler et al., composite means the metal foil between two polyamide layers. (See, for example, column 2, lines 30 to 32, of Breitler et al.) As Breitler et al. states:

"The composite according to the invention may also feature a sealing layer or sealable layer on one or both sides." [Column 4, lines 14 and 15]

The Examiner's reading of Breitler et al. is clearly incorrect and lies outside of the disclosure of Breitler et al. Breitler et al. does not disclose a polypropylene layer between a metal layer and a polyamide layer.

The paragraph at lines 39 to 44 in column 4 of Breitler et al. reads:

"In that connection it is useful for the plastic layers to contain or comprise of a polyamide-based thermoplastic and at least one a polyamide-based thermoplastic to feature a sealing layer on at least one side i.e. each layer of polyamide-based thermoplastic may be covered with a sealable layer on one or both sides, independent of the other layers." [Emphasis supplied]

It is clear that this paragraph is also awkward in its language. One ordinarily skilled in the art would readily understand what Breitler et al. meant was that the sealable layers were located only on the outside of the polyamide layers.

The above quotation from Breitler et al. starts out with the phrase "In that connection...". Since the subject paragraph immediately follows the other paragraph discussion just above herein, it is clear that the subject paragraph is also discussing the situation where the sealable layers are only located on the outside of the polyamide layers. The subject paragraph does *not* involve any sealable layers located between the polyamide layers and the metal foil.

The reference in the subject paragraph to the phrase "...may be covered with a sealable layer on one or both sides" refers to one or both sides of the composite of the polyamide layers on the metal foil [and not to one or both sides of a polyamide layer(s)]. The Examiner has misconstrued the subject paragraph.

To further show the correctness of applicants' position (as opposed to the Examiner's incorrect position), note that Breitler et al. also states:

"Typical arrangements of the layers in composites according to the invention include for example:

a) a middle layer of aluminum of thickness e.g. 8 to 80 μm , preferably 40 to 70 μm and in particular 45 to 60 μm , and on each side of the aluminum layer.

b) and b') a layer of adhesive coating and/or bonding agent having a thickness of 1.5 to 9 μm , or 1 to 10 g/m^2

c) and c') a layer of biaxially stretched polyamide of thickness e.g. 20 to 50 μm , preferably 20 to 40 μm and in particular 20 to 30 μm

and if desired

d) and d') a barrier layer on one or both sides

and if desired

e) and/or e') a layer of a sealing coating or sealing layer on one or both sides in a quantity of 2 to 6 g/m^2 , or of thickness up to 10 μm ."

"Layers b) and b') of coating adhesive and/or bonding agent may also be employed between the layers c) and d), c) and e) and/or d) and e), and between c') and d'), c') and e') and/or d') and e')."

"Useful composite materials contain e.g. layer a), layers b) and b'), layers c) and c'), and a layer e) or contain the layer a), layers b) and b'), layers c) and c') and layer e'). Other useful composite materials contain e.g. the layer a), layers b) and b'), layers c) and c'), possibly a further layer b') with a layer d') on top of it, and possibly on layer c) and/or c') one layer each of e) or e'). A layer b) and b') may also be provided between layer c) and e) and between d') and c') respectively. Analogously, layers b), c), d) and e) are provided on one side of layer a) and layers

b'), c'), d') and e') on the other side of layer a)." [Emphasis supplied] [Column 5, line 51, to column 6, line15]

The Examiner's reference to col. 4, lines 36 to 45, of Breitler et al. concerns the single or double-sided coextrusion of the composite of a metal foil with a polyamide layer on both sides, sealable layers or sealable films on the side or sides to obtain a single or a double-sided sealable composite.

The arrangement of a sealable layer only makes sense when it is used in a sealing process. However, a sealable layer can only be sealed against another sealable layer, e.g., a first polypropylene may be sealed against a second polypropylene layer, but not against the metal foil.

A person ordinarily skilled in the art would not join a double-sided sealable composite to an aluminum foil. But, this point aside, Breitler et al. does *not* disclose any polypropylene layer (or other sealable layer) between a polyamide layer and a metal layer. Therefore, the layer structure as instantly claimed in the present invention is not anticipated by Breitler et al.

Page 108 of Ullman [cited and applied in combination under Section 103(a) by the Examiner] states:

"Special heat-sealable, polyolefin-based layers result in composite films that can be separated by peeling."

As this prior art information is part of the knowledge of one ordinarily skilled in the art, this prior art information reinforces the applicants' position that the Examiner is incorrect in trying to interpret column 4, lines 36 to 44, of Breitler et al. as disclosing polypropylene layers between the polyamide layers and the metal layer.

The Office Action stated that Breitler et al. teaches that to join the aluminum foil or to bond the plastic films or individual layers to each other, an adhesive coating and/or bonding primer are usually employed wherein a suitable adhesive is a maleic-anhydride modified polypropylene, and suitable bonding agents are epoxy or urethanes, wherein the bonding agent or primer may be, for example, applied in amounts of 0.1 to 10 g/m², usefully 0.8 to 6 g/m² or the adhesive layer has a thickness of 1 to 12 µm or applied in an amount of 0.1 to 14 g/m² (Col. 5, lines 3 to 47). This disclosure of Breitler et al. does not anticipate applicants' overall claimed invention.

The Office Action stated that Breitler et al. teaches a number of layer arrangements including the layer structure as instantly claimed wherein the plastic films may be formed by warm coating or coextrusion and may be subjected to stretch-drawing, to produce a composite film useful in manufacturing packaging and parts of packaging such as packaging containers, base parts, blister packs, for storing or packaging foodstuffs or pharmaceutical products (Col. 5, line 48, to Col. 6 line 23; and Col. 6, line 65, to Col. 7, line 33). Applicants traverse this statement. As shown above, Breitler et al. does not teach applicants' five layers or their structural sequence. Breitler et al. does not anticipate applicants' claimed invention.

Furthermore, none of applicants' dependent claims are taught by Breitler et al.

This anticipation rejection is groundless and is based on clear misinterpretation of the disclosure of Breitler et al. The Examiner's misreading of part of Breitler et al. is part of the failure of this anticipation rejection.

This rejection should be withdrawn.

Claims 15 to 19, 21, 22, 27 to 29 and 32 to 37 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Breitler et al. in view of *Ullman's Encyclopedia of Industrial Chemistry*, vol. A11, (Ullman). Applicants traverse this rejection.

The interesting feature of this rejection, aside from the Examiner's misinterpretation of the disclosure of Breitler et al., as shown in detail above, is the fact that Ullman by itself and on its face destroys this obviousness rejection.

To repeat, page 108 of Ullman states:

"Special heat-sealable, polyolefin-based layers result in composite films that can be separated by peeling." [Emphasis supplied]

It would be a disaster, according to such teaching of Ullman, to place a polypropylene layer in the composite of Breitler et al. between its polyamide layers and its metal layer. The invention of Breitler et al. involves "a metal-plastic composite material that is stretch-formable and/or deep-drawable". The operations of stretch forming and/or deep drawing puts severe pressure and action on the composite films of Breitler et al. The presence of an interior polypropylene layer, upon such severe pressure and action, according to the teaching of Ullman, would cause a separation (equivalent to peeling) at the inner polypropylene layer(s) between the polyamide layer(s) and the metal layer. In view of the negative teaching of Ullman, one ordinarily skilled in the art would avoid any polyolefin layer between the polyamide layer(s) and the metal layer. (Besides, as shown above, Breitler et al. does not teach including a polypropylene layer between a polyamide layer and a metal layer.)

In essence, Ullman's negative teaching makes applicants' claimed invention unobvious.

The Office Action stated that the teachings of Breitler et al. are discussed above. As shown above, Breitler et al. does *not* disclose the inclusion of a polypropylene (or any other polyolefin) layer between the polyamide layer(s) and the metal layer. Besides, Ullman teaches the negative aspects of including any such polyolefin layer and confirms that Breitler et al. did *not* mean that a polyolefin layer is included between the metal layer.

The Office Action stated that Breitler et al. teaches a composite film containing a metal foil, particularly aluminum, with plastic films on both sides thereof wherein the plastic films may be multilayer films formed from various layer structures and specifically teach the general layer structure as instantly claimed with layer thickness within or comprising the instantly claimed ranges utilizing optional adhesive, bonding and/or primer layers to bond plastic layers to each other and/or to the metal foil as instantly claimed wherein the plastic films may be extruded, coextruded, or laminated via adhesive. Applicants traverse this statement. Breitler et al. does *not* teach the presence of a polypropylene (polyolefin) layer between a polyamide layer and a metal foil. Ullman teaches that polyolefin layers in a composite film are peelable, and, accordingly, would be an area where the composite would separate when subjected to forming pressure and action. Breitler et al.'s films are subjected to severe pressure and action. One ordinarily skilled in the art, as taught by Ullman, would avoid a polypropylene layer between one of its polypropylene layers and its metal layer in the composite films of Breitler et al., that are subjected to intense pressure and action in formation of the final pouches, etc.

The Office Action stated that, though Breitler et al. discloses all of the layers, layer materials and layer thickness as instantly claimed, Breitler et al. does not specifically limit the invention to the specific composite film combination as instantly claimed, however, it would have been obvious to one having ordinary skill in the art at the time of the invention

to utilize any of the structures disclosed by Breitler et al. selecting from the disclosed materials taught by Breitler et al. based on the desired film properties for a particular end use, and further to utilize routine experimentation to determine the optimum thickness of the individual layers given that layer thickness is a result-effective variable affecting the barrier, mechanical, adhesion and sealing properties of the resulting composite based on the desired end use of the packaging composite taught by Breitler et al. Applicants traverse this statement.

Breitler et al. does not "...disclose all of the layers,...as instantly claimed,...". In fact, by Breitler et al. using polyolefins as a sealing layer on the outside, one ordinarily skilled in the art is directed by Breitler et al. away from using any polyolefin between a metal layer and a polyamide layer. There is no reason in the prior art of record to use a sealing layer as an inner layer. Ullman even teaches that an inner polyolefin layer will easily separate from the composite. Needless to say, one ordinarily skilled in the art would not use an easily separable layer where the composite is going to be subjected to intense formation pressure and action during formation of pouches.

Both Breitler et al. and Ullman direct away from applicants' claimed invention.

The Examiner has *not* factually established in the record a prima facie showing of obviousness of applicants' claimed invention. The Examiner still has the burden of proof. Even if a prima facie showing of obviousness has been provided in the record, applicants have factually rebutted it. So the burden of proof is still upon the Examiner.

The purpose of sealing and sealable layers is to seal the outer surfaces of a composite.

The Office Action stated that, further, it would have been obvious to one having ordinary skill in the art to determine the appropriate laminating method, such as extrusion

laminating, lamination coating, coextrusion or laminating via adhesives as taught by Breitler et al., to produce the multilayer plastic films based on the individual layer materials to be laminated wherein laminating via adhesives, extrusion coating and coextrusion are conventional methods of producing composite plastic films as evidenced by Ullman which specifically teaches that coextrusion is unique in that it can produce very thin multilayer films and that polyamide films are mainly employed in composite structures produced by lamination, extrusion coating, or coextrusion with sealing or barrier resins (6.7 Polyamide, page 105). Applicants traverse this statement.

The Examiner has not even shown that there is motivation of record to combine Ullman and Breitler et al. in the search for applicants' claimed invention. Ullman does not cure the defects of Breitler et al. in that search. Ullman even directs away by its negative teachings.

Note that page 93 of Ullman refers to the use of coextrusion to produce *sealable* (triple layer) polypropylene film.

Except for the negative teachings of Ullman, the generic nature of the teachings of Ullman are of little or no value under Section 103(a) for to use such generic teaching in a specific instance (as here) is hindsight.

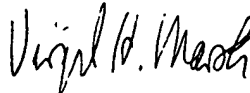
The Office Action stated that Ullman also teaches that composite films are conventionally utilized in the packaging industry to produce various packaging structures such as bags, sacks, and blister or cushion packs, or thermoformed structures such as container from thicker films, wherein the combination of plastic films with aluminum foil produces semirigid composites with exceptionally low permeability to gases, water vapor and odors (6.13 Composite Films, 7. Summary of Uses, pages 108 and 109). Ullman teaches that heat-sealable polyolefin layers in composite films can be separated by

peeling, so according to the Ullman teaching an inner sealable polyolefin layer would result in a composite separable at the inner sealable polyolefin layer. This would be disastrous for a composite to be subjected to intense forming pressure and action. Applicants found that unexpectedly an inner polypropylene layer did not result in separation of the composite when it was subjected to intense forming pressure and action.

This rejection should be withdrawn.

Reconsideration, reexamination and allowance of the claims are requested.

Respectfully submitted,



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Date: Feb. 13, 2002

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